

# Performance Measure Summary - Medium Area Sum (32 areas)

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2017. There is no single performance measure that experts agree "says it all". A few key points should be recognized by users of the Urban Mobility Scorecard data.

**Use the trends** - The multi-year performance measures are better indicators, in most cases, than any single year. Examining a few measures over many years reduces the chance that data variations or the estimating procedures may have caused a "spike" in any single year. (5 years is 5 times better than 1 year.)

**Use several measures** - Each performance measure illustrates a different element of congestion. (The view is more interesting from atop several measures.)

**Compare to similar regions** - Congestion analyses that compare areas with similar characteristics (for example, population, growth rate, road and public transportation system design) are usually more insightful than comparisons of different regions. (Los Angeles is not Peoria.)

**Compare ranking changes and performance measure values** - In some performance measures, a small change in the value may cause a significant change in rank from one year to the next. This is the case when there are several regions with nearly the same value. (15 hours is only 1 hour more than 14 hours.)

**Consider the scope of improvement options** - Any improvement project in a corridor within most of the regions will only have a modest effect on the regional congestion level. (To have an effect on areawide congestion, there must be significant change in the system or service.)

## Performance Measures and Definition of Terms

**Travel Time Index** - A measure of congestion that focuses on each trip and each mile of travel. It is calculated as the ratio of travel time in the peak period to travel time in free-flow. A value of 1.30 indicates that a 20-minute free-flow trip takes 26 minutes in the peak.

**Planning Time Index** - A travel time reliability measure that represents the total travel time that should be planned for a trip. Computed with the 95th percentile travel time it represents the amount of time that should be planned for a commute trip to be late for only 1 day a month. If it is computed with the 80th percentile travel time it represents the amount of time that should be planned for a trip to be late for only 1 day a week. A PTI of 2.00 means that for a 20-minute trip in light traffic, 40 minutes should be planned.

**Peak Commuters** - Number of travelers who begin a trip during the morning or evening peak travel periods (6 to 10 a.m. and 3 to 7 p.m.). "Commuters" are private vehicle users unless specifically noted.

**Annual Delay per Commuter** - A yearly sum of all the per-trip delays for those persons who travel in the peak period (6 to 10 a.m. and 3 to 7 p.m.). This measure illustrates the effect of traffic slowdowns as well as the length of each trip.

**Total Delay** - The overall size of the congestion problem. Measured by the total travel time above that needed to complete a trip at free-flow speeds. The ranking of total delay usually follows the population ranking (larger regions usually have more delay).

**Free-Flow Speeds** - These values are derived from time periods with lighter traffic volumes in the INRIX speed database. They are used as the national comparison thresholds. Other speed thresholds may be appropriate for urban project evaluations or sub-region studies.

**Excess Fuel Consumed** - Increased fuel consumption due to travel in congested conditions rather than free-flow conditions.

**Congestion Cost** - Value of travel delay for 2017 (estimated at \$18.29 per hour of person travel and \$59.94 per hour of truck time) and excess fuel consumption estimated using state average cost per gallon.

**Urban Area** - The developed area (population density more than 1,000 persons per square mile) within a metropolitan region. The urban area boundaries change frequently (every year for most growing areas), so increases include both new growth and development that was previously in areas designated as rural.

**Number of Rush Hours** - Time when the road system might have congestion.

## Mobility Data for Medium Area Sum (32 areas)

Inventory Measures	2017	2016	2015	2014	2013	2012
<b>Urban Area Information</b>						
Population (1000s)	22,625	22,500	22,335	22,245	22,030	21,820
Rank	--	--	--	--	--	--
Commuters (1000s)	11,429	11,349	11,259	11,220	11,179	11,065
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	197,811	194,600	189,368	182,803	175,547	172,875
Arterial Streets	211,196	211,012	207,271	203,380	199,157	197,120
<b>Cost Components</b>						
Value of Time (\$/hour)	18.29	17.91	17.69	17.67	17.39	17.14
Commercial Cost (\$/hour)	54.94	50.20	46.87	44.82	41.23	39.66
Gasoline (\$/gallon)	2.37	2.20	2.35	3.35	3.56	3.53
Diesel (\$/gallon)	2.58	2.36	2.61	3.68	3.95	3.95
System Performance	2017	2016	2015	2014	2013	2012
<b>Congested Travel (% of peak VMT)</b>	17.9	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	11.4	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	1.9	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	290,518	286,419	281,986	277,091	273,073	268,538
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	19	19	19	18	18	18
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	693,486	675,264	655,646	636,040	617,764	598,912
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	44	43	42	41	40	39
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.18	1.18	1.18	1.18	1.18	1.18
<b>Commuter Stress Index</b>						
Rank	1.19	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	1.45	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	12,854	12,224	11,788	11,716	11,290	10,807
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	748	729	708	687	676	665
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	29,128	28,363	27,536	26,711	25,945	25,154
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	61,588	60,722	59,780	58,744	57,890	56,931
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	1,564	1,395	1,291	1,268	1,165	1,101
Rank	--	--	--	--	--	--

\* Note: Zeroes in the table reflect values less than 0.5.

## Mobility Data for Medium Area Sum (32 areas)

Inventory Measures	2011	2010	2009	2008	2007	2006
<b>Urban Area Information</b>						
Population (1000s)	21,635	21,457	21,190	20,945	20,695	20,420
Rank	--	--	--	--	--	--
Commuters (1000s)	10,941	10,815	10,640	10,471	10,290	10,099
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	180,103	178,073	172,583	169,285	172,485	171,695
Arterial Streets	199,988	198,510	199,899	200,755	203,500	202,670
<b>Cost Components</b>						
Value of Time (\$/hour)	16.79	16.28	16.01	16.07	15.47	15.06
Commercial Cost (\$/hour)	44.62	42.50	41.83	40.77	39.30	37.88
Gasoline (\$/gallon)	3.37	2.75	2.30	3.45	3.04	2.67
Diesel (\$/gallon)	3.74	3.02	2.64	4.21	3.47	2.90
System Performance	2011	2010	2009	2008	2007	2006
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	263,623	259,733	253,699	261,692	255,176	245,003
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	17	17	16	17	17	17
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	578,568	561,801	538,941	530,309	516,538	495,595
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	38	37	36	35	35	35
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.18	1.18	1.18	1.18	1.18	1.18
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	10,220	9,492	8,870	9,110	8,459	7,818
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	656	657	641	628	638	629
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	24,298	23,595	22,636	22,270	21,693	20,816
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	55,883	55,067	53,786	55,478	54,096	51,939
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	1,160	1,048	974	1,033	942	842
Rank	--	--	--	--	--	--

\* Note: Zeroes in the table reflect values less than 0.5.

## Mobility Data for Medium Area Sum (32 areas)

Inventory Measures	2005	2004	2003	2002	2001	2000
<b>Urban Area Information</b>						
Population (1000s)	20,220	19,970	19,705	19,395	19,135	18,865
Rank	--	--	--	--	--	--
Commuters (1000s)	9,928	9,746	9,566	9,306	9,054	8,802
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	169,000	164,910	159,305	154,680	148,875	144,725
Arterial Streets	198,910	194,055	189,275	184,890	180,205	176,615
<b>Cost Components</b>						
Value of Time (\$/hour)	14.58	14.10	13.73	13.43	13.22	12.85
Commercial Cost (\$/hour)	36.51	35.19	33.92	32.69	31.51	30.38
Gasoline (\$/gallon)	2.32	1.97	1.55	1.41	1.56	1.57
Diesel (\$/gallon)	2.55	2.01	1.55	1.40	1.57	1.54
System Performance	2005	2004	2003	2002	2001	2000
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	236,984	229,581	221,880	212,034	204,409	197,150
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	16	16	15	15	14	14
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	479,349	464,371	448,583	428,424	412,773	398,091
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	34	34	33	33	32	32
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.17	1.17	1.17	1.16	1.16	1.16
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	7,262	6,730	6,242	5,810	5,549	5,206
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	631	633	628	614	602	597
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	20,137	19,504	18,843	17,994	17,335	16,717
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	50,243	48,671	47,038	44,952	43,336	41,794
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	772	703	630	578	548	508
Rank	--	--	--	--	--	--

\* Note: Zeroes in the table reflect values less than 0.5.

## Mobility Data for Medium Area Sum (32 areas)

Inventory Measures	1999	1998	1997	1996	1995	1994
<b>Urban Area Information</b>						
Population (1000s)	18,580	18,350	18,090	17,890	17,660	17,400
Rank	--	--	--	--	--	--
Commuters (1000s)	8,568	8,358	8,130	7,950	7,748	7,538
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	139,635	134,890	129,515	124,755	121,095	116,920
Arterial Streets	172,745	168,565	163,660	159,070	154,680	150,260
<b>Cost Components</b>						
Value of Time (\$/hour)	12.43	12.17	11.98	11.71	11.37	11.06
Commercial Cost (\$/hour)	29.28	28.89	28.50	28.12	27.75	27.38
Gasoline (\$/gallon)	1.17	1.12	1.24	1.30	1.20	1.11
Diesel (\$/gallon)	1.18	1.20	1.30	1.35	1.25	1.14
System Performance	1999	1998	1997	1996	1995	1994
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	188,290	176,922	166,216	156,061	146,277	137,115
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	13	12	11	11	10
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	380,044	357,093	335,342	314,858	295,117	276,584
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	31	30	29	27	26	25
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.15	1.15	1.14	1.14	1.13	1.13
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	4,749	4,366	4,058	3,741	3,394	3,087
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	589	568	543	525	510	495
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	15,961	14,996	14,086	13,226	12,396	11,614
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	39,917	37,508	35,237	33,083	31,008	29,067
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	459	424	398	376	338	310
Rank	--	--	--	--	--	--

\* Note: Zeroes in the table reflect values less than 0.5.

## Mobility Data for Medium Area Sum (32 areas)

Inventory Measures	1993	1992	1991	1990	1989	1988
<b>Urban Area Information</b>						
Population (1000s)	17,150	16,935	16,725	16,480	16,285	16,075
Rank	--	--	--	--	--	--
Commuters (1000s)	7,330	7,148	6,964	6,774	6,636	6,504
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	114,025	109,215	103,925	101,490	97,795	94,350
Arterial Streets	145,975	141,283	136,145	132,315	129,060	125,460
<b>Cost Components</b>						
Value of Time (\$/hour)	10.78	10.47	10.17	9.75	9.25	8.83
Commercial Cost (\$/hour)	27.02	26.66	26.30	25.95	25.60	25.26
Gasoline (\$/gallon)	1.15	1.17	1.15	1.10	1.12	1.04
Diesel (\$/gallon)	1.19	1.19	1.27	1.12	1.08	1.00
System Performance	1993	1992	1991	1990	1989	1988
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	127,044	117,871	108,736	100,047	91,023	84,258
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	9	9	8	8	7	6
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	256,413	237,843	219,385	201,922	183,721	170,163
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	24	23	21	20	18	17
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.12	1.11	1.11	1.10	1.09	1.09
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	2,797	2,525	2,268	1,999	1,731	1,524
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	471	454	431	417	400	390
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	10,769	9,988	9,213	8,481	7,718	7,147
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	26,936	24,990	23,053	21,208	19,294	17,863
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	286	265	243	215	195	176
Rank	--	--	--	--	--	--

\* Note: Zeroes in the table reflect values less than 0.5.

## Mobility Data for Medium Area Sum (32 areas)

Inventory Measures	1987	1986	1985	1984	1983	1982
<b>Urban Area Information</b>						
Population (1000s)	15,845	15,635	15,420	15,250	15,140	16,740
Rank	--	--	--	--	--	--
Commuters (1000s)	6,359	6,227	6,096	5,980	5,888	6,386
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	90,240	85,565	82,246	77,760	72,940	78,135
Arterial Streets	119,770	120,245	117,255	110,955	109,995	116,320
<b>Cost Components</b>						
Value of Time (\$/hour)	8.48	8.18	8.03	7.75	7.43	7.20
Commercial Cost (\$/hour)	24.93	24.60	24.27	23.94	23.63	23.31
Gasoline (\$/gallon)	1.05	1.02	1.33	1.34	1.38	1.44
Diesel (\$/gallon)	1.00	0.98	1.28	1.29	1.32	1.38
System Performance	1987	1986	1985	1984	1983	1982
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	78,086	72,784	66,470	61,676	55,116	57,268
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	6	5	5	5	4	3
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	157,790	147,066	134,264	124,557	111,261	116,348
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	16	16	14	13	12	12
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.08	1.08	1.07	1.07	1.06	1.06
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	1,365	1,226	1,121	1,009	868	885
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	376	365	342	332	310	298
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	6,626	6,176	5,641	5,229	4,673	4,888
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	16,553	15,429	14,093	13,073	11,686	12,141
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	163	147	139	127	109	118
Rank	--	--	--	--	--	--

\* Note: Zeroes in the table reflect values less than 0.5.